

Pre-Storm Mitigation and Post-Storm Reconstruction: A Plan for Nags Head

Bruce M. Bortz

For innovative planning efforts in the field of hurricane and storm mitigation, the town of Nags Head won the 1990 Legislative Award from the National Hurricane Conference, and the 1989 Small Community Outstanding Planning Award from the North Carolina chapter of the American Planning Association. The Federal Emergency Management Agency (FEMA) is developing a Hazard Mitigation Handbook using components of the Nags Head Storm Hazard Mitigation and Reconstruction Plan. In January 1990, Dr. Bortz presented the Nags Head plan at the Eighth Annual Winter Conference of the South Carolina Sea Grant Consortium, held in Columbia, South Carolina.

Introduction

In the mid-1970s elected officials and citizens of Nags Head, North Carolina began to fully appreciate the uniqueness of the low-density development of their community. They noticed the building trends of Ocean City, Maryland and Myrtle Beach, South Carolina, among other shoreline municipalities, which feature high-intensity beach development characterized by arcades, amusement parks and golf courses. The people of Nags Head began to fear that if future land development in their community were not regulated, then the quality of living in Nags Head would be lost. These important qualities include the slow pace of life, freedom from pollution and pressures from urban populations, and preservation of the natural environment and recreational opportunities. These qualities have been termed "the family beach atmosphere."

In 1980, the town's primary development goal was preservation of this family beach atmosphere--preservation of those qualities which had first drawn visitors and permanent residents to Nags Head. At the same time, the town realized that development after a hurricane or severe coastal storm would forever alter this environment. Open spaces and the ocean beach would be lost to redevelopment, forested areas could be destroyed, high densities and high rise development could occur and the family beach atmosphere would be lost forever.

For the last ten years the town has been working on numerous mitigation measures to reduce the loss of life and property associated with damaging coastal storms and hurricanes. Nags Head's approach to pre-storm mitigation measures has been far-reaching, from policy decisions on rebuilding of roads to restrictive oceanfront zoning, along with emergency police powers delegated to the town mayor in times of emergency.

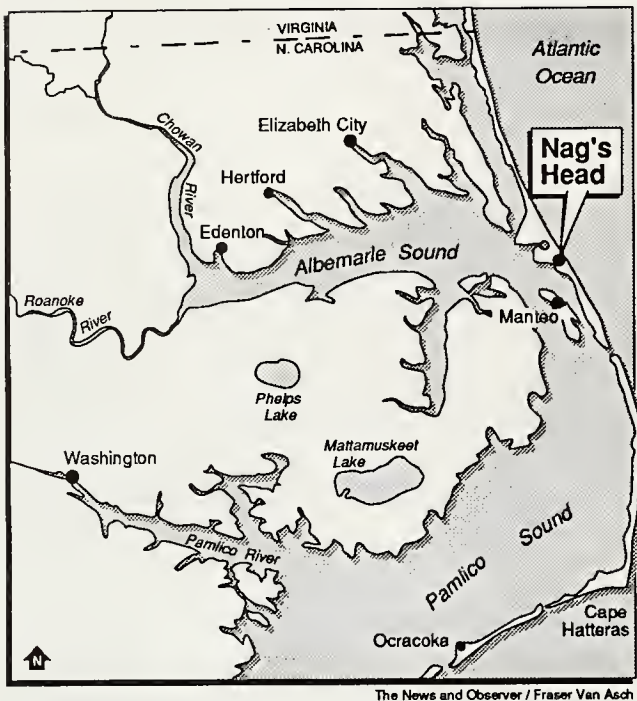
For the successful adoption of this plan it was necessary

for the planning staff to develop a close working relationship with the various town boards. One of the primary goals of the planning staff was to keep the elected board informed and involved with the development of this plan. For every mitigation measure considered, the staff would provide background material for the proposed regulation and tools for implementation, along with alternative consequences if this mitigation measure were not adopted. Keeping the elected board and other town boards well informed and involved on the issues, both pro and con, greatly reduced any apprehensions for adoption of pre-storm and post-storm mitigation measures.

In developing specific standards and regulations for the Nags Head Hurricane and Storm Mitigation and Reconstruction Plan, the planning board and the elected board addressed several fundamental issues: Is the proposed standard necessary to protect the health, safety and welfare of citizens and visitors in Nags Head? Is this proposed standard in compliance with the town's land use plan? Would the adoption of this regulation reduce the "level of risk" for individuals and property? Have alternative standards or mitigation solutions been addressed?

Throughout the development of this plan, the planning and development staff stressed to the town's elected board the importance that any effective mitigation program adopted by the town must be founded with a full understanding of the natural dynamics of the coastal environment. Those forces which alter the coastal environment include waves,

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wind, barrier island migration, and dune and beach dynamics.

The plan will cover three major components of hurricane and storm mitigation, involving actions the town takes before a storm or hurricane, during the storm event, and post-hurricane or storm mitigation and reconstruction actions.

Pre-Storm Mitigation Measures

Pre-storm mitigation measures are designed to lessen the loss of life and property that is subjected to risk. Measures the town has taken over the last ten years to reduce potential risks and maintain the open space along the oceanfront include prohibiting all commercial activities on the ocean beaches, closing the ocean beaches to swimming and surfing when storm conditions appear, and a strong active program for beach access improvements and open space acquisition.

Strict land use and zoning regulations enacted by the town in the last ten years have strengthened pre-storm mitigation measures. Highlights of these regulations include the following:

- Even though all coastal communities in North Carolina are required to follow oceanfront use and setback standards of the North Carolina Coastal Area Management Act (CAMA), the town has adopted some standards which are more restrictive.
- Town regulations impose strict setback, height and open space requirements for oceanfront motels and condominiums.
- The potential number of allowed hotel units per acre on the oceanfront was reduced by 60 percent.

- The potential number of allowed multi-family units on the oceanfront was decreased by 73 percent.
- The town prohibits wood frame, multi-story, multi-family buildings on the oceanfront to reduce the threat of fire.
- Commercial businesses are allowed only in a relatively small zoning district fronting the ocean and these commercial activities are limited to fishing piers, motels and restaurants.
- The site review process encourages development to locate as far as possible away from the ocean.
- All new subdivision lots on the oceanfront must extend from the Atlantic Ocean to the nearest state road that parallels the ocean. This eliminates cul-de-sac lots and flag lots, thus affording the opportunity for houses to relocate landward as erosion continues.
- Large lot sizes are required for single family and duplex structures on the oceanfront.
- Prior to rebuilding, the town may require that adjoining lots in common ownership be combined into one large lot.
- In addition to adopting FEMA flood prevention standards, the town has adopted some standards which are even more restrictive than FEMA.
- The town strictly limits the amount of impervious surfaces within the oceanfront zoning districts, thus reducing the amount of real property at risk.
- The town has extended its extra-territorial jurisdiction to one mile out in the Atlantic Ocean and the Roanoke Sound to regulate any activities that may occur in these areas.

In conformance with FEMA requirements, town building inspectors annually assemble and train assessment teams to survey damage after a storm. A Reconstruction Task Force of thirteen government officials and citizens receive annual instruction to prepare for their advisory role to the board of commissioners on a wide range of safety, zoning and reconstruction issues. Through newspapers, a quarterly newsletter and the local cable access channel, the town educates citizens regarding storms, hurricanes and rip tides.

Although the actual storm event is short-lived, the town is prepared thereafter with specific powers delegated to the mayor for declaring curfews, moratoriums, restrictions on travel and the operation of businesses. A building moratorium is automatically in effect should a hurricane strike the town. The town mobilizes and centralizes its response forces composed of fire, police, public streets and water departments, along with building inspectors.

Post-Storm Mitigation and Reconstruction

The town of Nags Head in October 1988 adopted a unique and resourceful program to mitigate the potential



Severe erosion has left this oceanfront house, once situated on high ground, at the edge of the Atlantic Ocean.

for the loss of life and property associated with hurricanes and natural disasters. The actions the town has taken will not only reduce numbers of individuals at risk should a disaster occur, but also will assure that the town will be rebuilt in a safe manner. These actions are rather unique and innovative in that Nags Head is ensuring public safety, protecting lives and property, and preserving the natural, cultural and economic resources through a program of land use controls and regulations. For this program the town of Nags Head received the 1989 Small Community Outstanding Planning Award from the North Carolina chapter of the American Planning Association.

This post-storm hurricane and storm mitigation and reconstruction program is a unique blend of planning management tools, town ordinances and policies, interagency cooperative agreements, as well as specific police powers given to the mayor. The purpose of the program is three-fold. First, the town is preparing now

for a major natural disaster. Second, the town has adopted laws which will provide for an orderly response in the event of a disaster. Third, the town has approved planning management tools which will reduce the numbers of people and value of property at risk after a storm while protecting and enhancing the economic stability of the town and protecting its most valuable resource--the ocean beach.

The components of the post-storm hurricane reconstruction plan consist of a wide range of unique and resourceful regulations and policies designed to increase public safety and to guide the town and its residents step-by-step from the damaging storm event through the determination of damage and the issuance of building permits. The plan will ensure that the town is rebuilt in a planned, safe, and economical manner.

The plan also will assure that all rebuilding will be in accordance with state and local laws and regulations.

Highlights of the hurricane and storm reconstruction plan include the establishment of building moratoriums based upon the severity of damage to ensure that structures are not rebuilt and occupied prior to passing safety inspections. Health and welfare requirements are instituted for



Sand bags buy time for these oceanfront houses.

the issuance of building permits to repair storm-damaged structures. Conditions are defined for declaring hazardous and damaged buildings and structures in public trust areas as public nuisances.

The plan has established policies for the reconstruction of private and public roads in addition to a program for rapid acquisition of land for open space, parks, recreation areas, and historic or scenic areas.

The plan establishes a program in which the town will utilize an assistance facilitator-consultant to advise the town and its citizens of types of emergency assistance and post-storm aid which are available, and will assist the town and its citizens in securing aid in those programs most needed.

The plan highlights the mayor's special authority when an emergency threatens the lives, safety, health and welfare of the town's citizens. The mayor may declare a state of emergency establishing curfews and restrictions on possession, consumption or transfer of intoxicating liquor, place restrictions on the possession, transportation and transfer of dangerous weapons, restrictions on access to damaged areas of the town, and may authorize emergency evacuation of the area.

In hurricane and storm preparedness and mitigation, risk has two primary elements: the exposure of people and property to coastal storms; and the potential for injury, loss

of life, and damage to property. The town addressed the probability of a severe storm occurring and then determined what mitigation measures were appropriate to re-

duce the risk to life and property. The adopted program represents a balance between actual and potential risks and the social benefits and detriments associated with the re-

strictions a town can impose on its citizens.

Nags Head has developed as a low-density town rather than a high-density, high-rise oceanfront community due to the town's commitment to preserving the family beach atmosphere. Pressures from the development community have since decreased, giving the town an advantage in the adoption and implementation of pre-storm mitigation and post-storm reconstruction measures.

An important feature of this mitigation and reconstruction program is that it was prepared and adopted by the governing board prior to a severe storm. This prior adoption not only leads to objective decision-making, but also lessens the social, political and economic pressures on the town which typically surface after a severe storm.

Conclusion

Implementation of this program will meet the town's goals of reducing in advance the potential for loss of life and damage to property from hurricanes and severe coastal storms, and establishing procedures, policies and mitigation measures during reconstruction to reduce damage from future storms.

Although the plan was designed for Nags Head, it would be applicable to many coastal communities and certain components of the plan would be beneficial for any community recovering from a natural disaster. The plan has been requested from localities as far away as California. The neighboring Outer Banks towns of Kill Devil Hills, Kitty Hawk, and Southern Shores have either incorporated some of this plan in their ordinances or are considering the issue now. The Federal Emergency Management Agency is developing a Hazard Mitigation Handbook which will contain components of the Nags Head plan. □

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Once on the oceanfront and in danger of destruction, this relocated house now sits a comfortable 1,000 feet from the ocean.